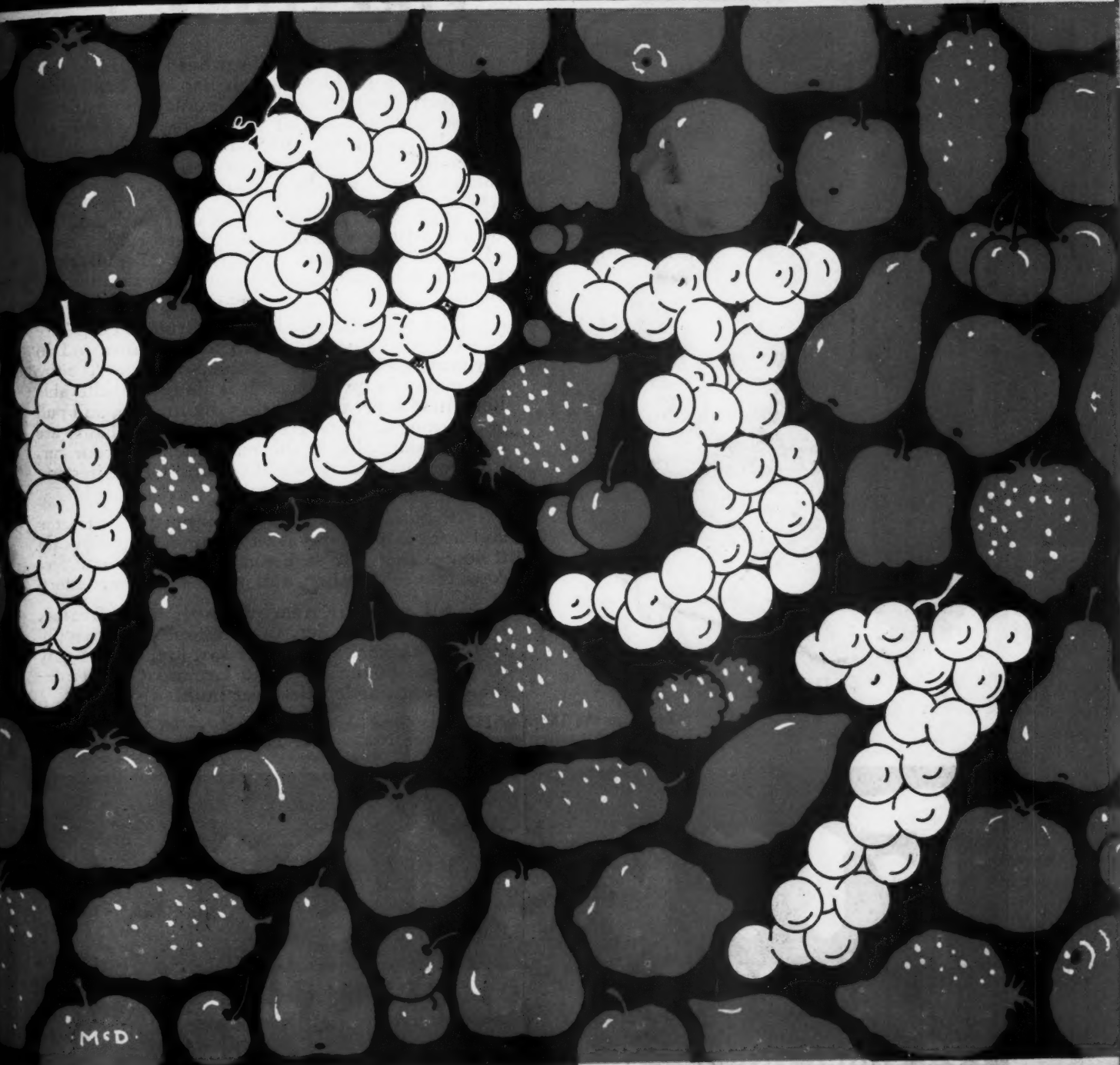
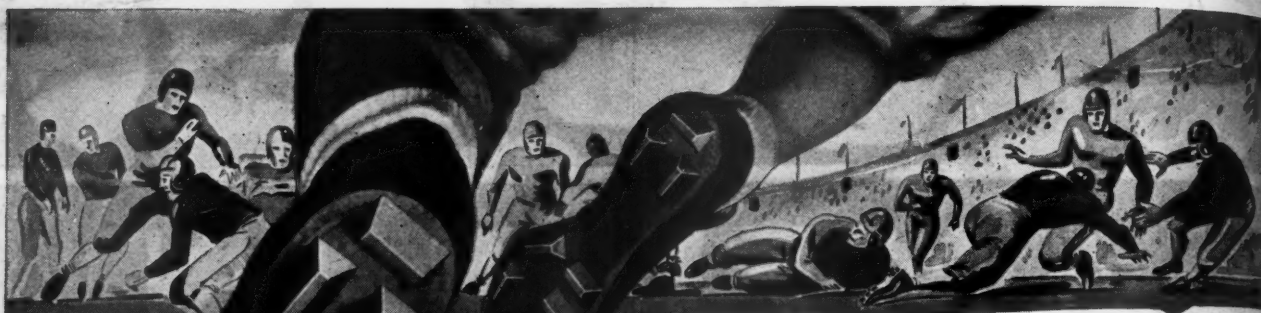




AMERICAN FRUIT GROWER





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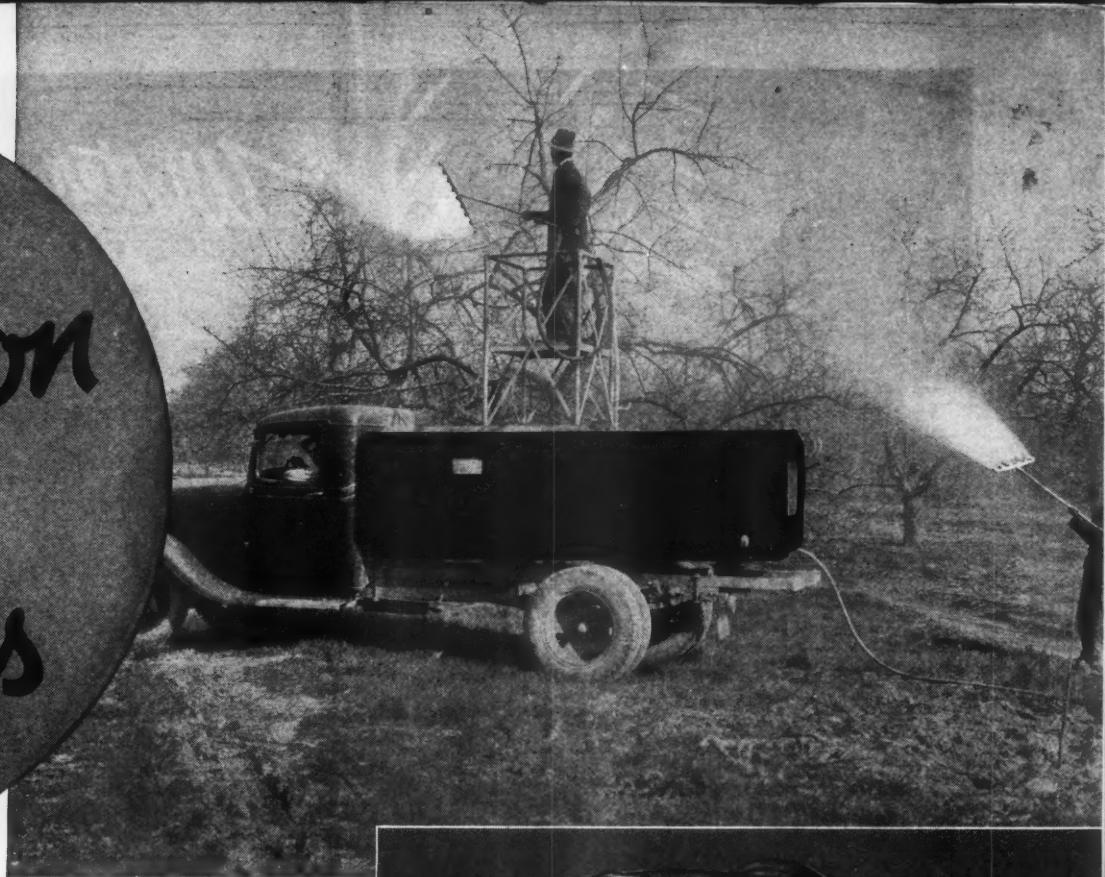
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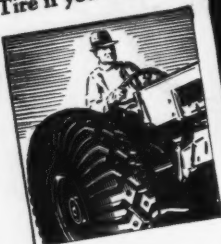
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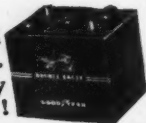
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GOOD YEAR

FARM HANDS THAT PAY THEIR WAY

AMERICAN FRUIT GROWER

TITLE REGISTERED IN

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JANUARY

1937

VOL. 57

THE NATIONAL FRUIT MAGAZINE

NO. 1

VAGARIES OF THE WEATHER

ON AN adjoining page we publish a summary of a survey of the damage done to fruit trees during the winter of 1935 and 1936. The observations of Professors Anthony and Sudds may be equally applicable to adjacent areas and are worthy of careful perusal.

The vagaries of climate are well nigh endless and provide one of the chief hazards of fruit growing in America, whether it be North or South. If this last experience were unparalleled it would not create the problem that it does when we realize that widespread damage also occurred in 1902-03, 1917-18, 1933-34, and again in 1935-36, in various parts of the country. Each time there has been a feeling, locally, that such damage never occurred before and is not likely to be repeated for many years to come. But no complacency is justified and it must be recognized that we grow fruit in many sections which are not fully adapted to varieties, and indeed species, like those of the peach, plum, cherry, apple, pear, certain of the small fruits and grapes.

To make matters worse in portions of the affected areas, the protracted droughts have complicated the problem. Indeed it is difficult to segregate the type and nature of the injury from the two causes. But in any event, it is time that a long look ahead be taken in the industry and that individuals take such steps as are practical to avoid or alleviate such capital losses in the future.

In appraising the losses and determining the factors or causes involved certain precautions may well be observed. The situation is full of paradoxes, of conflicting evidence. In one section a given variety, such as Rome Beauty or Wealthy, ranks as one of the most tender and in another one of the most hardy. In one place trees of high

vigor are most resistant and in another quite tender. Sometimes elevation has been a determining factor and again there seems to be no relationship.

The trouble is that we are often not prepared to ask the question of Nature in an intelligent manner. We ask a question which cannot be answered. If we knew more of the immediate local conditions of temperature, maturity, soil factors, or previous treatment, the question would be put differently and a clear-cut answer obtained. But as a result of incomplete information we rely upon circumstantial evidence, which is dangerous. We gather only fragments of evidence and attempt to piece them together and then draw conclusions. What seemed like fact may appear quite ludicrous when all the information is available.

Surely one of the outstanding needs is to select, so far as possible, varieties which are hardy. All the evidence is against the Baldwin apple for regions where low winter temperatures prevail or conditions favor a lack of maturity. The J. H. Hale peach could well be replaced for similar reasons,

and the Reine Claude and Lombard plums would have a similar classification. This does not mean that they are to be abandoned, but why replant over and over again where they are known to be injured?

Likewise, we may as well become reconciled to the fact that unfavorable sites and soils cannot turn a profit in the long run and build a horticulture of better adaptation.

It is likely that much is to be learned about rootstocks for the various fruits, but particularly the apple. This is a long-time program but a beginning should be made. Already something is known about the superiority of the Virginia Crab and Hibernial over French Crab stock. But much more information is needed.

There is the old saying, "It is an ill wind that blows no good." So this mortality serves to reduce the total tree population and put the fruit industry on a more profitable basis. Much has already been done voluntarily to reduce acreage but it is largely by the removal of filler trees, undesirable varieties, abandonment of poor soils and sites, all of which represents a well-ordered plan.

These hit and miss tactics of Nature in removing good varieties and vigorous trees from seemingly favorable locations is indeed a misfortune to the individual orchardist but in the end contribute to the solution of the over-production problem. If in replacing trees, superior sorts can be used, better locations selected, a better diversity of fruit interests developed, then the loss will be mitigated to some extent.

It is this underlying philosophy of the fruit grower that has carried him forward through many past adversities and will see him established on a sounder foundation when his action in this matter is recorded.

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A "Round Table" Page for Every Grower
AMERICAN FRUIT GROWER

E. G. K. MEISTER

Publisher

DEAN HALLIDAY

Managing Editor

DR. J. H. GOURLEY

Associate Editor

EDNA ANNE KRAUSE

Associate Editor

WILLIAM H. ZIPF

Field Editor

T. J. TALBERT

Contributing Editor

MARY LEE ADAMS

Home Economics Editor

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"SAVE THE SOIL SURFACE AND YOU SAVE ALL"

By CLAUDE WOOLSEY

Extension Horticulturist
Arkansas

THE fruit grower, in working out a suitable soil management program for the orchard, should take into consideration 1) the prevention of erosion, 2) the maintenance of soil fertility, and 3) the conservation of water. These problems are so great in importance that profitable production cannot be attained unless proper steps are taken to solve them. Any program carried out should, as far as possible, combine all three of the above points.

The growing of suitable ground cover, both winter and summer, will control sheet and gully erosion on land of average slope, and will also build up the organic matter content of the soil, which in turn will increase the water-holding capacity and decrease the runoff of water.

Since it is often impractical to terrace or contour the soil in the bearing orchard, it is necessary, with highly erodible soil on steep slopes, in order to effectively control erosion, to keep the soil covered most of the year with some erosion-resisting crop. Permanent sod grasses have the best erosive-resisting properties, but many fruit growers as a rule, especially peach growers, believe a permanent sod to compete rather heavily with the trees for moisture during the dry periods of the summer. It is, however, a

much debated question as to whether or not the permanent sod will be a greater hindrance to the trees in this respect than a summer green-manuring crop such as cow peas and weeds.

Growers with orchards planted on fairly level land, with little or no sheet erosion, often follow a practice of rye and vetch over winter. The rye and vetch are plowed under in the spring about the time the bloom begins to appear on the vetch. Following this, the land is lightly cultivated once or twice and the weeds and grass allowed to grow until fall when rye and vetch are again planted. This system does not build up the organic matter very rapidly and, if heavy rains occur, much of the benefit will be leached away. The coarse weeds are clipped once or twice to decrease the competition for water.

A good practice to follow for erosion control in orchards planted on highly erodible soils if a permanent sod is not desirable is to plant rye, winter barley or oats early in the fall to insure good growth before winter starts. Early in the spring overplant the winter cover crop with common or Korean lespedeza. If lespedeza is

not suitable, other crops may be substituted.

The winter cover crop is usually clipped about the time it begins to head and allowed to remain as a mulch. The lespedeza will grow throughout the summer, thus building up a supply of organic matter and nitrogen. The soil is then disked and planted to rye the following fall. The lespedeza will reseed and a new seeding is not necessary the following spring. The coarse weeds and grass should be clipped from the lespedeza two or three times during the summer. When clipping the weeds the cutting bar of the mower is run high in order to prevent cutting of the lespedeza.

Other systems and crops may be worked out, but the grower should keep in mind that the largest amount of erosion control should be secured with the least damage to trees or soil. It should be kept in mind that where no erosion occurs or where the orchard is planted on the contour, the winter cover crop system with cultivation following the contour lines may be practiced if desired.

Erosion control means maintaining fertility. Probably the first step in maintaining soil fertility is to prepare the soil for the cover crop by

(Continued on page 9)



SURFACE GONE BUT NOT FORGOTTEN



SHOWING THE EFFECT OF EROSION ON HIGHLY EROSIBLE SOIL
AMERICAN FRUIT GROWER

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JANUARY,



Effect of one way cultivation in the peach orchard. Note the gully formed in the middle between the rows.

"SAVE THE SOIL SURFACE AND YOU SAVE ALL"

(Continued from page 7)

applying such amounts of lime and superphosphate, or lime and complete fertilizer, as necessary for good growth for that type of soil fertilized. If a new orchard is to be planted, it is best to plant the trees on the contour, if the land is not level. As a rule, it is best to plant the trees on contour ridges, having an interval of about the distance desired for the rows.

The contour ridges are laid out on the level and far enough apart to effectively stabilize the soil on the degree of slope present. Usually the ridges are broad base ridges, high enough to effectively control runoff and erosion.

The importance of this method of land stabilization in highly erodible soil is shown by the results of many tests. Recent figures from the U.S.D.A., taken from orchards planted on steep slopes in California, show that untreated plowed land on a steep slope lost 500 tons of soil per acre during a single cloudburst, while the contoured acre with vegetative protection for the soil and ridges lost no soil and very little water.

The following information relative to recent cover crop experiments is reported by A. L. Schrader in the September number of *The Maryland Fruit Grower*:

"During the past five years, cultivation of a young apple orchard with-



Plant the trees on broad base contour ridges

PEARS •

Production of pears in the United States is on a slightly upward trend particularly in the Pacific Coast States. This trend will probably continue for the next three or four years despite the present small nonbearing acreage. Increased production will probably go into the fresh market rather than to canneries or to the drying trade. Unless the rate of new or replacement plantings is greater than during the past five years, it is probable that the number of bearing trees will begin to decline shortly after 1940.

There are definite signs of improvement in the foreign situation. This is of importance since about one-fourth of the pear crop is exported as fresh, canned and dried pears. Reduction in duties and other concessions that have been secured on pear products in a number of the trade agreements that have been signed to date should stimulate exports. More competition may be expected for American pears in foreign markets because of the increasing production of table pears in many countries.

Although there are fewer pear trees in the United States at the present than at any time in the last 25 years, the production is greater than it has ever been. Increases in pear production during the past five years have been chiefly confined to Washington and Oregon, in which States the increase largely consists of winter varieties.

Present prices indicate that the average price for pears during the 1936-37 season will be considerably higher than last season. Prices received by growers in the eastern States have been consistently higher since 1929 than those received by growers on the Pacific Coast.

CHERRIES •

Considering the total number of trees and the percentage not yet of bearing age, it appears that cherry production in the United States for the next five years, under average growing conditions, will be as high if not higher than the last five years. Although plantings during the past few years in the principal producing States have been little more than sufficient to take care of replacements, it is believed that enough trees will come into bearing to more than offset any normal losses for two or three more years.

Farm prices of cherries have been rising slowly in recent years largely because of increased demand and a

1937 GENERAL FRUIT OUT- LOOK AS SEEN BY THE U. S. D. A.

Information just released by the U. S. D. A. Bureau of Agricultural Economics contains material of interest to growers throughout the country. Editors of *AMERICAN FRUIT GROWER* offer a digest of this information in the individual fruit departments of this issue. Below is a general fruit outlook for 1937.

Combined supplies of all fruits are increasing generally. This movement may be expected to continue upward during the next four or five years. The possible decline in apple and peach production will probably be offset by the increased citrus output. Pear supplies are probably stable at present levels and there may be a slight increase.

Outlook for the entire fruit industry will be fundamentally influenced by the level of consumer income, i. e., the total income from fruit depends on consumer buying power. Consumer demand for all fruits is such that large crops tend to result in the same gross income as do small crops. There are, however, marked exceptions to this statement.

With per capita production as an index it appears that the consumption of all fruits on a per capita basis has been increasing slightly during the decade ended with the period 1931-35.

World production of most fruits is increasing. Consequently, keener competition may be expected in world markets in the future. If the American fruit industry continues to improve the quality of its product and to maintain high export standards, a profitable outlet should continue for substantial quantities of fruit in foreign markets.

higher general price level.

The increase in bearing acreage and an upward trend in production during recent years have been greater in the eastern group of States (New York, Pennsylvania, Ohio, Michigan, and Wisconsin) than in the western group (Montana, Idaho, Colorado, Utah, Washington, Oregon, and California).

Because of the short crop the 1936 pack of canned sour cherries was much below normal. This situation enables canners to clean up stock remaining from the heavy 1935 pack. Trade reports indicate that the canning industry is in a much improved position, with the reduced supplies

selling readily and at increasing prices.

Michigan is the largest cherry-producing State. According to the 1935 census there were about 2,250,000 bearing trees in the State. This State produced 27,450 tons in 1936 or 59 per cent of the entire quantity produced in the five important eastern States.

GRAPES •

The present bearing acreage of all grape varieties appears to be hardly sufficient, with average yields, to take care of the expected increase in consumption during the next two or three years. A recent survey indicates that nonbearing acreage and present plantings in California are insufficient to maintain the present bearing acreage.

Present bearing acreage for raisin grapes appears hardly sufficient, with average yields, to produce supplies of grapes large enough to take care of the demand for raisin varieties for use as juice and table stock in addition to satisfying the demand for raisins.

Demand for table grapes will probably increase with improvement in business conditions and in purchasing power of consumers. The average production from present bearing acreage will probably be no more than sufficient to care for the increase that may occur during the next two or three years. Prices of eastern grapes on the terminal markets made large gains during the past year. The prices for California table grapes in the eastern markets were about 12 per cent higher than those of 1935.

Wine consumption has increased at an unexpectedly high rate since repeal of the Eighteenth Amendment, and is an encouraging factor in the outlook for all grapes, especially wine grapes. However, if the bearing acreage of raisin and table varieties is maintained, or increased slightly, the total quantity of grapes available for juice stock will probably be sufficient for the next few years without any increase in the bearing acreage of wine grapes.

APPLES •

Total apple production is expected to average somewhat higher during the coming five years than the average of the last five seasons. This conclusion is based on the belief that average growing conditions during the coming five years will be better than during the last five-year period, when

(Continued on page 21)



York Imperial topworked on Northern Spy trunk. This type of injury was not visible until about mid-September, 1936.



Same tree as in picture on the left after removing dead bark. Finger points to union of scion and stock. York top uninjured.



All bark on the trunk of this McIntosh tree was loose up into the branches. This type of injury was visible in early spring, 1936.

LOW TEMPERATURE INJURY TO ORCHARDS

In Pennsylvania

1935-1936

By

R. D. ANTHONY
and
R. H. SUDDS

THE weather has always been the fruit growers' greatest environmental trial, particularly so because no two years in succession are alike. Many years the weather losses are due to extreme winter temperatures. In the winter of 1917-18 and again in 1933-34 temperatures of 30 to 40 degrees below zero killed or seriously injured large numbers of peaches, cherries, and apples, although many trees went through these temperatures apparently unharmed. The winter of 1935-36 with minimum temperatures of only 12 to 15 degrees below zero caused more damage to orchard trees in Pennsylvania than any other winter since 1917-18, and in the western half of the State more even than during that famous winter. Why did these comparatively moderate temperatures kill trees which several times had gone through temperatures of 15 to 20 degrees lower without such extensive injury?

Three factors are very important in conditioning the ability of low temperatures to cause injury to fruit trees: the minimum temperature, the time of year the cold spell occurs, and the rapidity of the temperature decline. The last factor is especially important when the temperature is high—above freezing—at the beginning of the drop, and becomes still more important when bright sunlight raises the temperature of exposed bark much higher than the air temperature. These factors had a very important bearing on certain weather conditions during the autumn and winter of 1935-36.

From October 5 through October 9

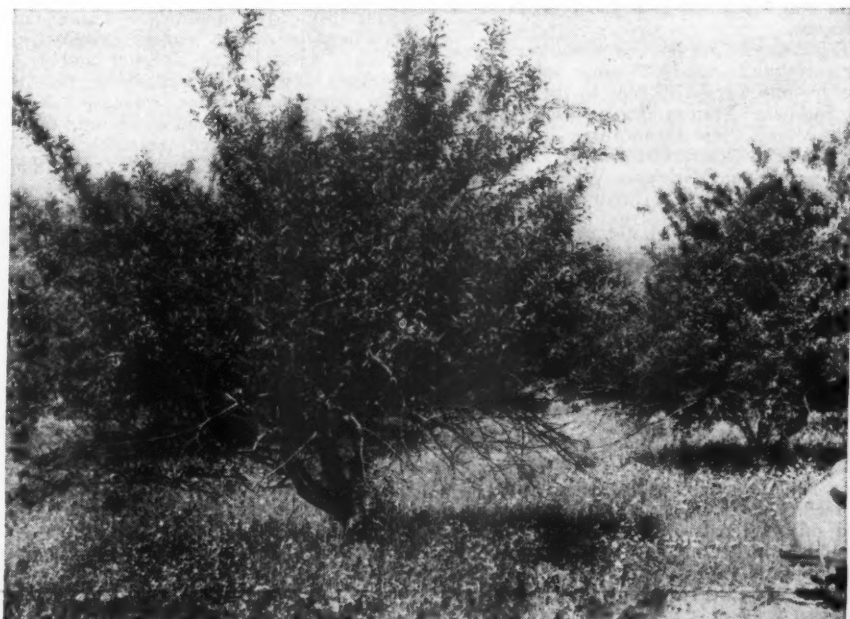
a cold wave blanketed the entire State, and extended into New York, the New England States, and Ohio. In the experimental orchard at State

The lower limbs on this Delicious tree were killed while the trunk remained uninjured. This injury was visible in the spring of 1936.

College, Pa., the temperature on the morning of October 7 was 17 and on the two following mornings it was 22. Apples on the tree were frozen solid but if untouched thawed without turning dark. These soon started to drop; over the weekend of the 20th thousands of barrels dropped throughout the State. Following the freeze a considerable proportion of the leaves fell prematurely, while the remaining leaves held on much longer than usual. Apparently the cold weather upset the normal development of the abscission layer in both fruit and leaves.

During the latter part of the growing season and for a considerable time after leaf fall, the tissues of a

(Continued on page 22)





A page conducted in the
interests of the American
Pomological Society

NEW OFFICERS FOR 1937

THE joint convention of the American Pomological Society and the Virginia State Horticultural Society came to a close on December 10. Attendance reached about 500. Delegates and visitors came from many states and from as far west as Minnesota, Iowa and Illinois, from Canada, and from a number of the New England States.

The program for the three-day session was packed full of interest, and it is believed that some epoch-making papers were presented, because they brought together some new facts which are destined to have a far-reaching influence upon the fruit industry of America.

Exhibits

A fine exhibit of fruit was placed upon exhibition in the auditorium. That Virginia is one of the natural homes of King Apple was amply verified by a large Virginia showing of the 15 leading commercial varieties grown in this region. The fruit was arranged very effectively in trays and plates by the Extension Division of V.P.I. under the direction of Profs. A. H. Teske and L. R. Tucker. The Virginia exhibit contained 88 trays and 400 plates. The fruit was furnished by a group of Virginia growers.

Exhibits of the leading commercial apple varieties grown in 16 other apple growing regions were also sent to the show by the following States: Massachusetts, Maryland, Maine, New Hampshire, Connecticut, New York, North Carolina, South Carolina, Tennessee, Michigan, Wisconsin, Missouri, Idaho, Oregon, Illinois and Iowa.

The allied industries exhibits were also set up in the auditorium and were of real educational value in making it possible for growers to meet these groups and to become acquainted with the very latest developments in the orchard supply field.

Some Program High Lights

It would be difficult to select the most outstanding paper presented during the meeting, for there were many real contributions. On the first day the variety question and the stocks problem were ably discussed. Dean H. L. Price of the V.P.I. led off, and was followed by Dr. H. P. Gould, senior pomologist of the U. S. D. A., Washington, D. C., and by H. L. Lantz, Iowa Agricultural Experiment Station, Ames.

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Prof. T. J. Maney, Iowa Agricultural Experiment Station, told of the benefits of using hardy, vigorous stocks in the orchard. Dr. F. J. Schneiderhan reviewed 15 years of experimental work on the fatal black root rot of the apple, and reported that up to date no effective method of controlling this disease had been discovered.

At the evening session of the first day Secretary W. S. Campfield presented a highly instructive report on his market tour of the South and laid great emphasis upon the necessity for standardizing the grading and packing of Virginia apples.

President B. S. Pickett gave a masterly address in which he pointed out that science and pomology must go hand in hand to assist the fruit industry in growing a better product, in marketing it more scientifically, and in showing to the great consuming public that in the apple is found one of the most healthful and useful of all the fruits.

The health-giving qualities of the apple are becoming better understood, and the industry should receive considerable benefit as a result. It is now recognized that the apple contains some very important mineral and pectic substances which are exceedingly important because of their unique protective qualities. These facts were brought out in a most excellent report by Myra Potter Bregger and J. T. Bregger, in which it was shown that the apple contains valuable minerals and a highly significant amount of vitamin C.

Dr. H. E. Barnard, research director of National Farm Chemurgic, Dearborn, Mich., and secretary of the National Apple Institute, told the story of how chemistry is being marshalled to assist in discovering new uses for horticultural products.

Orchard Soil Problems

New information on orchard soil problems provoked considerable discussion. Dr. Firman E. Bear, director of agricultural research, American Cyanamid Company, New York City, stated that organic matter in the orchard was of vital importance in producing good fruit and regular crops. Clean cultivation, or any cultivation beyond that actually needed, is unwise. Dr. Bear stated that sod is the best known means of accumulating organic matter in the orchard. It checks erosion on hilly or rolling lands, but it needs nitrogen fertilizer.

"The trend is toward fall application, for

AMERICAN FRUIT GROWER

fall applications of nitrogen have many advantages and no known disadvantages," said Dr. Bear. It protects the trees from frost, and starts the trees off well in the spring. If the soil is acid it may need lime. When potash and phosphorus are applied, these elements must be cultivated into the soil, because they will not reach the roots unless they are incorporated with the soil by cultivation. The chief benefit derived by the use of complete fertilizers is in enabling the soil to grow better cover crops. This is particularly true in those orchard soils which have become too poor to grow cover crops.

The much maligned quack grass may yet be found useful, declared Dr. Bear, for it will grow in shade and in poor soils, and furnishes quantities of organic matter. Quack grass needs to be investigated in the orchard, is the suggestion of Dr. Bear.

Apple advertising, irrigation, peach growing, spraying problems, lead residues and other topics were discussed at considerable length, but these reports cannot be reviewed here. Read the complete report of the convention in the Proceedings of the meeting. We are assured that the report will be ready for the mails early in the year. So send your annual dues to Secretary H. L. Lantz, Ames, Iowa, at once in order that you may have your copy of the report of this excellent meeting. Annual dues are \$1.25, and you also receive a year's subscription to AMERICAN FRUIT GROWER.

A.P.S. Officers Elected

Officers elected for the year 1937 were:

President—B. S. Pickett, Ames, Iowa
Vice Presidents—C. E. Dutton, Milford Center, Ohio; A. Grant Fox, Normandale, Canada

Secretary—H. L. Lantz, Ames, Iowa
Associate Secretary—J. T. Bregger, Waynesboro, Pa.

Treasurer—H. C. C. Miles, Milford, Conn.
Board of Managers: Laurenz Greene, Lafayette, Ind.; J. H. Gourley, Wooster, Ohio; C. Purcell McCue, Greenwood, Va.

EXECUTIVE COMMITTEE

The Officers ex-officio and
J. C. Blair, Urbana, Ill.
N. E. Hansen, Brookings, S.D.
H. D. Hootman, East Lansing, Mich.
John Lyman, Middlefield, Conn.
Carroll R. Miller, Martinsburg, W.Va.
M. B. Palmer, Vineland, Ontario
E. L. Overholser, Pullman, Wash.
H. L. Price, Blacksburg, Va.
H. W. Skinner, Chambersburg, Pa.
G. Leslie Smith, Rock Island, Ill.
Paul Stark, Louisiana, Mo.
T. J. Talbert, Columbia, Mo.
H. B. Tukey, Geneva, N.Y.
Robert Simpson, Vincennes, Ind.
R. A. Van Meter, Amherst, Mass.
D. C. Webster, La Crescent, Minn.
W. T. Cowper, Newfane, N.Y.

Virginia Officers

Frank P. Wissler, Mt. Jackson, Va., was elected president of the Virginia State Horticultural Society.

The Virginia society and Roanoke lived up to their reputation for fine hospitality. The convention was a successful one from every standpoint. Much of the success of the fine meeting was due to the excellent management of Secretary W. S. Campfield, who is well known for the splendid work he has done for the Virginia society and for the Virginia fruit industry.

JANUARY, 1937

Black Leaf

40

PROTECTS APPLES

Kills Aphis, Leaf Hopper, Red Bug, Bud Moth and Codling Moth

PROTECTS PEARS

Kills Psylla, False Tarnished Plant Bug, Thrip and Slug

PROTECTS PEACHES

Kills Aphis
Protects Grapes, Kills Leaf Hoppers
Protects Currants and Gooseberries, Kills Aphis, Currant Worm, Four-lined Leaf Bug

PROTECTS PLUMS and CHERRIES

Kills Aphis
Protects plant life from insect damage, and staining by dogs.
Kills Poultry Lice and Feather Mites

Use "BLACK LEAF 40" for Profit Insurance Against Destructive Insects

A profitable crop demands adequate protection against orchard insects. "Black Leaf 40" kills insects that suck juices from your foliage and fruit. It also kills young chewing insects (worms) when it hits and wets them. It kills the insects quickly, thus giving prompt protection to the crop. "Black Leaf 40" may be used alone or it may be used with other standard orchard sprays. Either way, it kills insects. Add "Black Leaf 40" to stomach poison sprays for better worm control.

Being volatile, "Black Leaf 40" "fumes off," killing insects *both* by its contact and by its fumes. It is a poison of vegetable origin and will not "burn" man, horses, trees, or crops. "Black Leaf 40" is highly concentrated—a little goes a long way. Easy to mix and apply. "Black Leaf 40" has many other uses too. Kills lice on poultry and live stock. Protects flowers and vegetables from destructive insects. Keeps dogs away from trees and shrubs. You'll find "Black Leaf 40" is sold by good insecticide dealers everywhere.

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Quality

...a sound basis for spraying
for profitable results



Other

ORCHARD BRAND Sprays and Dusts for Every Grower's Need

"Astringent" Arsenate of Lead
Standard Arsenate of Lead
Calcium Arsenate
Arsenite of Zinc
Zintox (Basic Zinc Arsenate)
Paris Green
Bordeaux Mixture
"Dritomic" Sulphur
"Apple Dritomic" Sulphur
Paradichlorobenzene
Nicotine Sulphate
(40% Nicotine)
X-13 (Pyrethrum Extract)
Fungi (Sulphur) Dust
90/10, 85/15 and other
Sulphur-Arsenical Dusts
Bordeaux-Arsenical Dust
Copper Lime Dusts
Veget-Aid—a Rotenone Dust

YOUR dormant spraying investment in labor and materials will be profitable in direct proportion to the quality of your materials and the thoroughness with which application is made. If the experience of the many thousands of growers who use them year after year is any guide, you choose right for **ECONOMY** and **PROFITABLE RESULTS** when using **ORCHARD BRAND**

LIME SULPHUR SOLUTION and OIL EMULSION "83"

(83% NEUTRAL BASE OIL)

The former, for general orchard and packing house clean up and sanitation, has a multitude of friends who swear by its uniformity and the effectiveness of its high concentration. Scientific chemical control in manufacture gives it a 29% calcium polysulphide content. Therein lies its consistent superiority to the non-scientific home-boiled product.

Shipment to strategic centers in the Company's own tank cars, as well as in drums, makes for economical purchase by growers in all principal fruit districts. Truly an **ECONOMY** product for dormant spraying.

The dry-packed form is also available where the user prefers it.

Get your copy of the
1937
"Cash Crops"

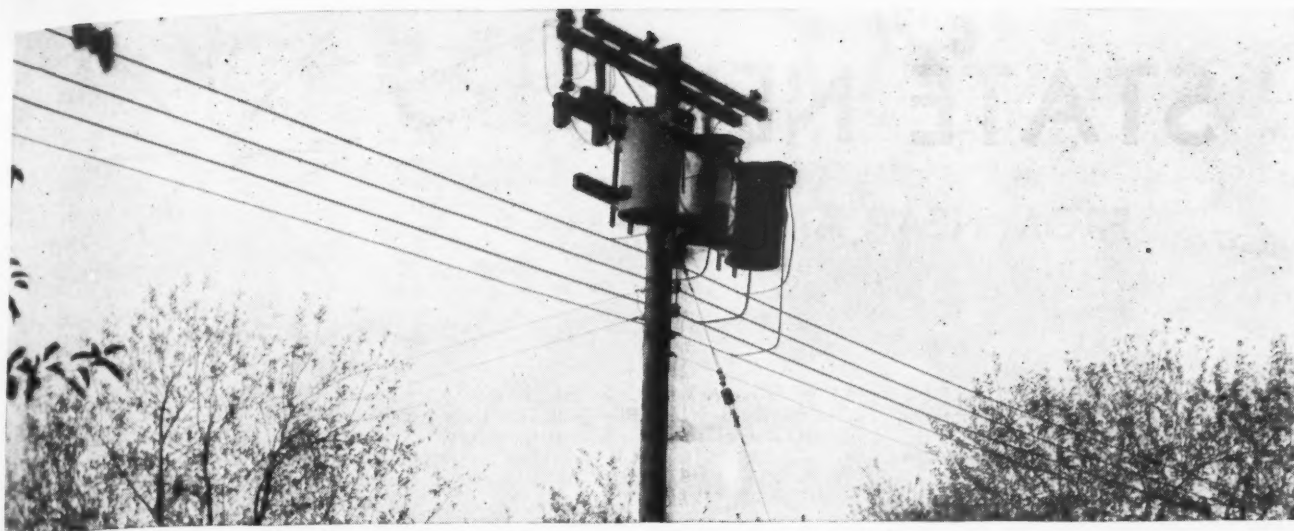
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Please send me a copy of the new edition of "Cash Crops."

NAME and
ADDRESS

1937...A STILL BIGGER YEAR FOR "ASTRINGENT" LEAD!



AN ELECTRIFIED FRUIT FARM



From these transformers comes power for many operations in the Coffing Bros. Orchard near Covington, Ind. High-powered current is stepped down in the transformers for use in many ways on the 325-acre fruit farm.

Harnessed Atoms

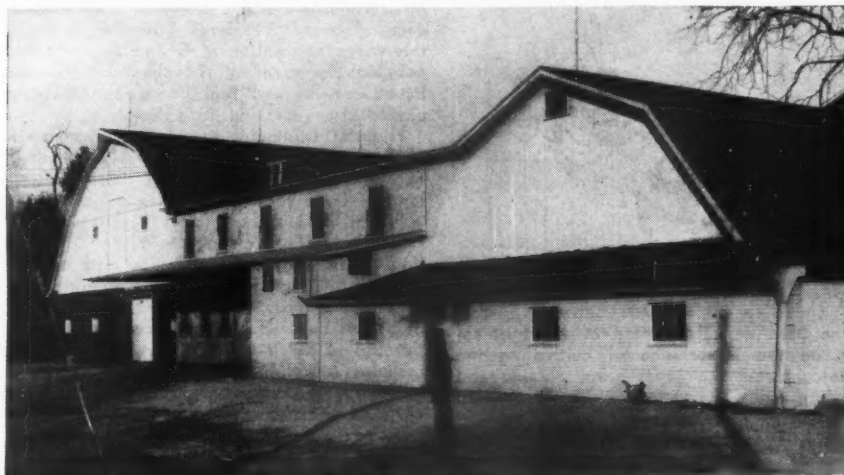
By WILLIAM H. ZIPF

FROM the kitchen corn popper to the giant electric motor on their refrigeration units the Coffing Brothers, H. J. and J. D., have modernized their fruit farm with electricity. The Coffing Bros. Orchards are located near Covington, Ind.

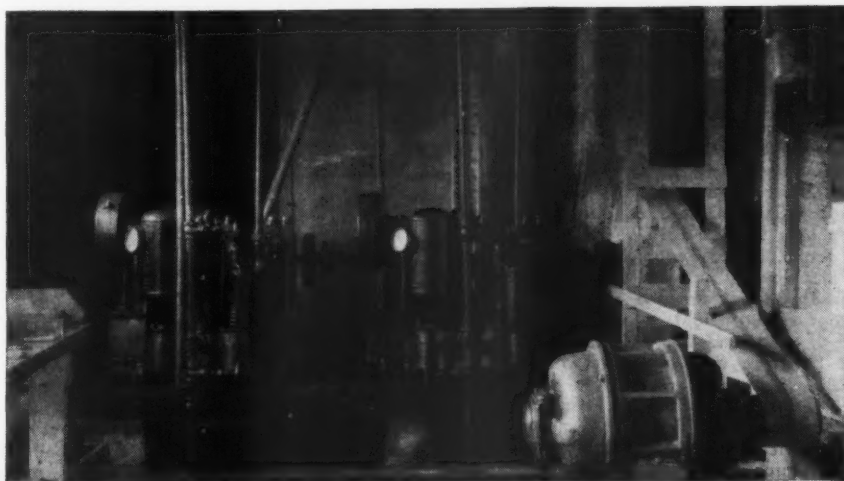
The orchards comprise 325 acres of apple trees in sod. The homes of the brothers are located near the orchards and are completely equipped with electrical devices, with the exception of the heating system. Even this may soon be dependent on electricity for its operation, since the Coffings are contemplating the purchase of stokers.

The packing house and cold and common storages form the center of the group of buildings on the farm. Cold storage capacity is 40,000 bushels, while the common storage will accommodate 20,000 bushels. The farm office is in connection with the packing house. Other buildings in this central group are the completely equipped workshop, a small building housing the electrical switch boxes, and the building

(Continued on page 28)



Packing house and storage buildings on the Coffing Orchards. The two storage units have a combined capacity of 60,000 bushels of fruit and are completely insulated.



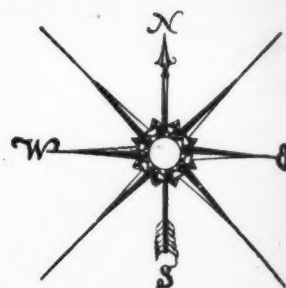
Two of the three electrically operated spray pumps in the stationary spray plant on the Coffing Orchards. Two large mixing tanks supply the pumps with spray materials.

AMERICAN FRUIT GROWER

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STATE NEWS

FROM NEAR AND FAR

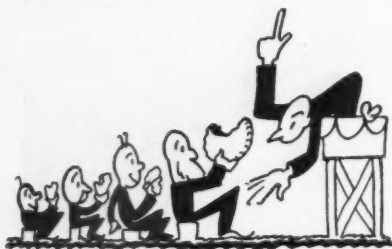


INDIANA—Hoosiers are agog these days getting ready for the 76th annual meeting of the Indiana Horticultural Society January 12-14 at Lafayette, during Purdue Agricultural Conference Week.

Fruit growers W. B. Yates of Knox County, Earl Byers of Vincennes, and George L. Waid of Muncie will discuss peach topics first day: winter injury, commercial variety selections, low heading, while Dr. M. J. Dorsey of Illinois will talk on the peach situation in the Middle West.

Orchard management trends, irrigation, mulching, refrigerated storage, marketing, codling moth control, will be featured talks the following two days by C. E. Baker, C. L. Burkholder, H. G. Venemann and F. C. Gaylord of Purdue, L. F. Steiner of the U.S.D.A., Vincennes, and Grower David Simpson of Vincennes.—**EVERETT WRIGHT**, Sec'y, Lafayette.

SOUTH DAKOTA—S.D. horticulturists have found in the town of Clark the Genie of Aladdin's Lamp for successful conventions: They feed 'em free!



Prof. L. L. Davis of State College, Brookings, spoke to the growers between lunches at the 53rd annual meeting of the hort society on the importance of cultivating the orchard, planting a cover crop, pruning and spraying, and encouraged intelligent orchard management practices.

Regarding cultivation to preserve soil moisture: Last summer a road grader cut a grade along the State College Department of Horticulture Watertown orchard. The surface was clean cultivated, the subsoil moist. On the opposite side of the road, same type soil but old sod pasture, subsoil was dry.

He cautioned growers to fertilize heavily and plow under cover crops systematically to maintain humus content of the soil when clean cultivation is practiced, and observed that American Indians were forced to leave thickly populated towns when the organic matter of their soils, under a tropical sun, was exhausted.

Prof. Davis advocates a trunkless apple tree for South Dakota conditions. This tree starts as a bush and 15 years later, according to Dr. A. F. Yeager, of North Dakota, will undoubtedly be alive, will have a greater mean trunk circumference at ground level, a greater mean height, a greater mean volume of head, and will yield more pounds of fruit per tree than any other training system.

F. X. Wallner of Sioux Falls was again chosen president, George W. Gurney of Yankton vice-president, H. N. Dybvig of Colton treasurer, Mrs. Frank Briley of Dell Rapids librarian, Max Pfeander of Brookings director for five years.—**W. A. SIMMONS**, Sec'y, Sioux Falls.

PAGE 16

MINNESOTA—Anna M. Streed, operating Little Elk Gardens at Little Falls, knows her weights. Dorsett strawberries, quart measure,



averaged, according to her records, four ounces more than an equally full quart box of Dunlap, with Wayata and certain other varieties, with intermediate in weight between the former two. A full box of small berries weighed more than a full box of large berries of the same variety.

An unusually large population of field mice is reported. As early as October injury was observed. Unless drastic measures are taken, Mr. Mouse will be the Boss.—**J. D. WINTER**, Sec'y, St. Paul.

MICHIGAN—Getting off to a lusty attendance of over 1,500 bona fide fruit growers, this year's convention at Grand Rapids set a new high for excellent speeches, overcrowded banquet halls, and real heartfelt enthusiasm unseen at any previous fruit show.

High in fruitmen's esteem are the newly-elected president, W. K. Bristol of Almont, and Secretary Don Hootman, East Lansing, long of fame for unique apple exhibits.

"Farm cold storage pays big dividends," said Sheldon Funk of Boyertown, Pa. "It saves time when it is most precious and enables packing for demand only. In determining cost of a cold storage, figure a capital investment of \$1 per bushel for a coil type and 25 cents per bushel for a blower type storage, which includes everything."

Cave storages are unsatisfactory. The warm earth retains the summer heat, making it impossible to reduce temperatures and take full advantage of cool autumn nights.

The floor of a fruit storage is important. For a common storage Mr. Funk wouldn't take a cement floor as a gift. A cold storage needs a carefully insulated floor, using only waterproof insulating materials. Macadam, which is porous and easily laid, makes an ideal cold storage floor, according to Mr. Funk.

W. Dale Hilbish's (Painesville, Ohio) rapid-action movies of spraying gangs vied with crack metropolitan fire fighters for dash and vigor. Theme of the show: Proven economies were demonstrated through the simple expe-



dient of intelligent organization of crews and equipment.

High lights of W. P. Matthews' (Glendale, Ohio) talk: Motorists buy fruit when returning to the city; therefore, locate roadside stands on the right-hand side of the roads leading to the city. Use floodlights to attract evening homegoing buyers.

Cultivate the commission men with whom
AMERICAN FRUIT GROWER

you deal and work with them. Make the seller understand that you know fruit prices in the various markets and what your fruit is worth and you will get from 10 to 15 cents more per bushel.

"Irrigation solved the small apple problem in my orchard," said Frank H. McDermid of Battle Creek, Mich. "All my apples attained normal size. The trees were in sod and I fertilized heavily. Irrigation made the plant food available to the trees and the fruit made a uniform growth throughout the season." McDermid's apples were large and as highly colored as fruit grown under irrigation in the Pacific Northwest.

Climax of the meet: Secretary Hootman was proud to report that during one day of the convention more life memberships (they're \$10 a life) had been signed up than in the past two years combined!

PENNSYLVANIA—Growers in western Pennsylvania have removed thousands of fruit trees killed or fatally injured during the winter of 1935-36. This section was one of the two leading peach producing districts in the State



but the mortality in bearing peach trees will be astounding if accurate figures are gathered.

With the new nursery catalog season has come the perennial problem of the renaming of varieties by nurserymen. One book in particular features the Lodi apple from the Geneva (N.Y.) station under the new name of Early Golden. This unsatisfactory situation is listed for discussion at the Harrisburg meeting (January 20-21) of the State Horticultural Association.—**R. H. SUDDS**, Sec'y, State College.

NEW YORK—Those fortunate enough to reside within hiking, bus, railroad, airplane, or automobile distance of Rochester and Kingston are cordially invited on January 12-15 and 27-29, respectively, to attend the New York State Horticultural Society meetings.

A highly informative program has been prepared for the Rochester meeting. Subjects to be treated include: Newer insect sprays, new peach borer control methods, peach production and thinning, variety problems, new developments in rooting of plants (illustrated), irrigation, fertilizers, soil management, harvesting, handling, marketing and advertising of fruit.

A few of the speakers: Prof. M. A. Blake of New Jersey, Dr. J. K. Shaw of Massachusetts, Prof. J. P. Porter and Dr. A. J. Heinicke of Cornell, Dr. J. R. Magness of the U.S.D.A., and Dr. P. W. Zimmerman of Boyce Thompson Institute, winner of \$1,000 award given by American Association for Advancement of Science for outstanding scientific contributions.—**H. B. TUKEY**, Geneva.

(Continued on page 18)

JANUARY, 1937

For Fruit Growers



New Streamline Model "AO" shown with new Model "OR" Disk Harrow that enables you to make turns to either right or left without stopping.

new Streamlined John Deere Tractor and Equipment

One glance at this new John Deere Model "AO" Tractor for Grove and Orchard and you know that it is a tractor specially designed for fruit growers.

Notice the fully streamlined, low-down design . . . the full enclosure of chassis, rear wheels, belt pulley, and flywheel . . . not a thing to catch branches, to injure blossoms, to bruise fruit. A real orchard tractor.

And under these smooth, flowing lines is John Deere Economy, Simplicity, Dependability . . . fewer, more rugged parts that last longer . . . easier maintenance . . . straight-line transmission with no bevel gears to consume power. And in addition—the ability to burn the low-cost fuels successfully and efficiently.

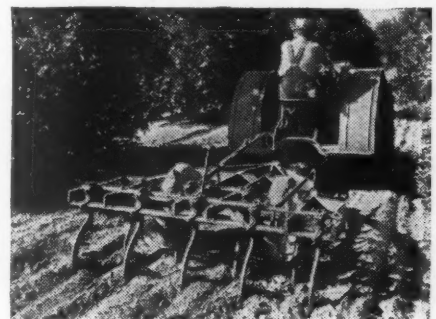
There are four practical speeds, too—2, 3, 4, and 6-1/4 miles an hour . . . a wide, roomy platform . . . built-in power shaft . . . independently operated differential brakes that make for short turns to right or left at the end of the tree rows . . . power to handle the load ordinarily pulled by a six-horse team.

A smaller John Deere Grove and Orchard Tractor is the Model "BO" that handles the load of a four-horse team.

Examine these tractors at your John Deere dealer. Test them out in your groves. You'll soon number yourself among the more than the hundred thousand farmers who depend upon John Deere Tractors for smooth, dependable, economical power. Write for complete descriptive literature. Use coupon below.



A real soil-stirring job is done with this John Deere Spring-Tooth Harrow. Fully controlled from the tractor seat. Shown with Model "BO".



The John Deere No. 3 Orchard Cultivator keeps out the weeds, mulches the soil, and keeps the orchard thriving.

In 1837, John Deere, an obscure village blacksmith, gave to the world the steel plow. From that humble beginning has grown the great John Deere organization which this year celebrates the hundredth anniversary of that event.



JOHN DEERE
TWO-CYLINDER TRACTORS

SIMPLE — ECONOMICAL — DEPENDABLE

John Deere,
Moline, Illinois, Dept. E-242
Please send me full information on John Deere Grove and Orchard Tractors and on the Orchard Equipment I have checked.
Name.....
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- ☐ Grove Plows
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- ☐ Field and Orchard Cults.
- ☐ No. 3 Orchard Cultivator
- ☐ Engines
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Camera!



J. H. Allison, left, farm adviser, Calhoun County, Illinois, welcomes the Southern Illinois State Horticultural Society in the person of Hugh Lamer, Jr., of Cobden, president of the society, to its 63rd annual meeting at Hardin.



Dr. M. J. Dorsey, chief in pomology at the University of Illinois, chats with Senator H. M. Dunlap, prominent Flora, Ill., fruit grower, who operates a 160-acre orchard in addition to his duties as State Senator.



Hugh Hale, secretary of the Southern Illinois State Horticultural Society, looks over a Willow Twig apple tree in one of the Calhoun County hillside orchards. Mr. Hale was re-elected secretary of the Southern Society at the Hardin meeting.

STATE NEWS

(Continued from page 16)

ILLINOIS—High light of the Southern Illinois Horticultural Society meeting at Hardin was the report of Dr. S. C. Chandler, assistant entomologist at Carbondale, that scale had been reduced to three per cent during the winter but had increased during the year to 27.5 per cent on peaches and 16 per cent on apples. This would indicate that regardless of climatic conditions a letup in spray applications is dangerous.

Fruitmen now eagerly await the 81st assembly of the Illinois State Horticultural Society in Carbondale on February 3-5.

Resume of topics: Weather and the small-fruit grower, apple pollination, soil-moisture, new peach varieties, apple pruning, codling moth and other insect control.

Outstanding speakers include Dr. A. E. Murneek of Missouri, Dr. J. R. Magness of the U.S.D.A., Prof. M. A. Blake of New Jersey, Dr. R. H. Roberts of Wisconsin, and Dr. E. J. Newcomer of Washington, and Drs. A. S. Colby, M. J. Dorsey, W. P. Flint, K. J. Kadow and Prof. R. L. McMunn of Illinois, according to J. B. HALE, Sec'y, Salem.

WISCONSIN—In the article in the December issue of *American Fruit Grower* on strawberry mulching it was stated that "strawberry plants should be mulched as soon as the ground freezes" and that "the purpose of mulching is not to shield the plants from cold temperatures, but to reduce alternate freezing and thawing."

This leads me to call attention to the work done at the Wisconsin Experiment Station the past four years which has rather conclusively proven that in colder sections such as Wisconsin at least, strawberry plants should be mulched before the first heavy freeze in the fall, and that the greatest value of the mulch is to protect the plants from cold or freezing temperatures before they have reached a dormant condition.

Our growers complained for many years of black root and black crown in the spring, especially growers selling plants. Pathologists found no disease to which the black root or crown could be attributed. Experiments at the Wisconsin station, substantiated by leading growers, indicated this trouble was due to freezing of the roots and crowns in the fall before dormancy when they were unprotected by snow and when the temperature dropped to between 12 and 20 degrees F.

During the past two years several inches of snow protected the plants from this early cold and there was no injury to uncovered beds. In other years uncovered beds with a dense, matted growth of tops, which served as a protection, came through uninjured.

Black root and crown in the spring resulted in greatly decreased yields, especially during the dry spring and on sandy soils because of the poor root system.

Plants uncovered in February suffered no injury even though below zero temperatures occurred after that time. This shows that strawberry roots and crowns are tender during the growing stage. High temperatures and drought during midsummer have also caused root injury, especially on sandy soils.

Beds uncovered early in the spring gave better yields than those uncovered late, in the Wisconsin station tests.—H. J. RAHMLow, Sec'y, Madison.

MASSACHUSETTS—The Codfish State sets another high standard in the fruit growing field with the announcement by the Massachusetts Fruit Growers Association of the following program January 6-8 at Worcester:

Orchard heating, underground in an orchard, new insecticides, codling moth, new fruit varieties, 1936-37 apple deal.

Prominent among the speakers: Sheldon Funk of Pennsylvania, Dr. Joseph Oskamp of Cornell, R. A. Van Meter and Wilbur H. Thies of Massachusetts, H. N. Worthley of Pennsylvania, Walter Piper of Massachusetts.—W. R. COLE, Sec'y, Amherst.

Here's
How



you can profit most from your orchard

There are four fundamental principles in orcharding—

- | | |
|-------------|---------------------------------|
| 1. Moisture | 3. Foliage and Fruit Protection |
| 2. Humus | 4. Insect Control |

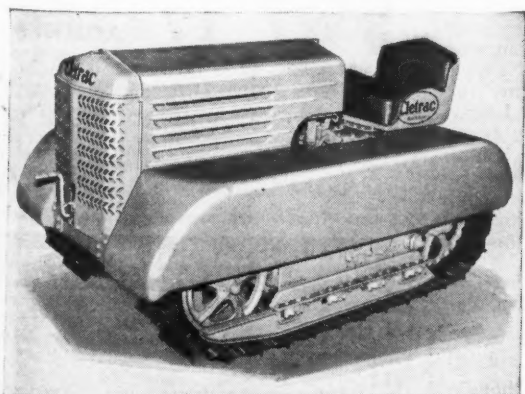
Only through the medium of *power* can all these principles be thoroughly applied. To conserve and retain moisture requires humus in the soil. This means deep tillage, and deep tillage takes power.

Efficient spraying for foliage, fruit protection and insect control demands power too—power to pull and operate spray rig—as well as power to haul the fruit from the orchard.

A reliable power unit is absolutely necessary for successful orcharding and must be designed and built to fit the conditions.

CLETRAC is the Power Unit Designed and Built Especially for the Orchardist—WHY?

Cletrac will work every day throughout the year—regardless of soil conditions. It has power to do two jobs at one time—pull the spray rig—uphill, through mud, around short turns or long turns, under full load with the least possible effort... and power to maintain the required spray pressures—always at low operating and maintenance cost. Remember, high-pressure spraying pays big returns. It takes power—and Cletrac is THE tractor with POWER.



Cletrac Streamlined Orchard Models can be equipped with fenders to prevent damage to low-hanging fruit and branches.

THE CLEVELAND TRACTOR CO., Cleveland, Ohio

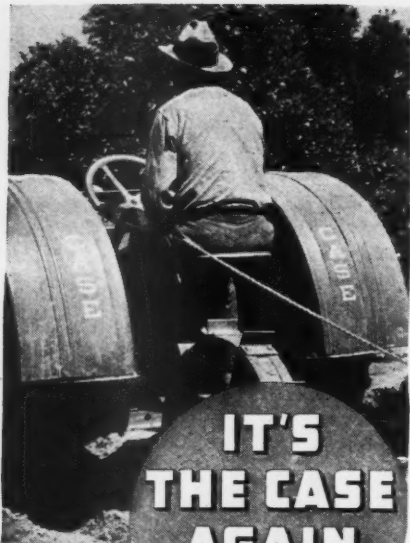


The Only Crawler Tractor
Built that has Power on
Both Tracks at All Times

THE CLEVELAND TRACTOR COMPANY
19300 Euclid Avenue Cleveland, Ohio

Send me your fully illustrated and detailed broadside covering all uses of your Streamlined Orchard Model.

Name _____
Address _____
We farm _____



YOU GET ALL THREE
IN A 1937 CASE TRACTOR
LOW .. FIRST COST
LOWER FUEL COST
LOWEST UPKEEP COST

Fuel economy? Case tractors get amazing amounts of power out of any fuel from furnace oil to gasoline — any fuel fit for any practical farm or fruit tractor. But fuel is only part of power cost. Case tractors cost little to buy . . . give you a lot of power for every dollar of first cost. Most important, Case has longer life and lowest upkeep costs . . . lowest total cost.

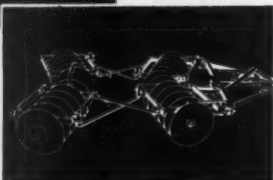
Case tractors pay better because they move faster, turn quicker, pull full loads on short turns, handle easier, do less damage to limbs and fruit. See these many-fuel, many-feature orchard tractors at your near-by Case dealer. Write for free book, "Money Ahead," to J. I. Case Co., Dept. A-12, Racine, Wis.

CASE
 STEEL PLOW BUILDERS SINCE 1837

Case Centennial orchard plow. Clearance to handle heavy cover crops at any depth; high-speed bottoms to scour and cover; extra high, quick-acting lift.



Case "J" orchard disk harrow angles and straightens with drawbar power under trip-rope control. Low frame; no levers; nothing to catch branches.



Case Subsoil Tiller with power-lift and crank-adjustment. Convertible to 3 or 1 standards.

"HOW FAST CAN A FAST PICKER PICK"

Arguments over "how fast can a fast picker pick" are waxing hotter than ever as a result of the Pippin Picking Controversy announced in the November issue. Hundreds of growers, young and old, who think they know something about proper as well as speedy picking of apples are expressing themselves in letters to American Fruit Grower. From these letters we herewith publish three which express varying opinions on the subject. How fast do you think a fast picker can pick? If you have an opinion either way on the subject, send in your letter. Address it to Editor Pippin Picking Controversy, American Fruit Grower.

No "Clawing" for Me

In the September issue I read the record of Roger Carl Moore and I did not doubt the possibility of a man picking or, rather, clawing off 276 bushels of apples, even in a 10-hour day. I know it can be done, for, as a matter of fact, I equalled that record years ago on 15-year Ben Davis trees.

Of course, a record of that kind is not equalled except under the most favorable conditions and on a piece-work basis in competition with other pickers. That's my own experience. Personally, I would not class that kind of picking or clawing as first-class picking. And if I were the owner of such an orchard and had grown it up to such a wonderful condition as to make it possible for a man to do as much as Mr. Moore has stated, I would see to it that I did have first-class, conscientious pickers.

The quality and appearance of good apples requires careful hand picking. Bruises and stem punctures should be guarded against in placing the apples in the picking receptacle. The pickers may by an upward turn and twist pull the apples from the twig, leaving the stem on the fruit and the twig on the tree instead of clawing in the picking receptacle and running the fruit over a grading table where from underneath you can take away bushels of fruit spurs which should have been left on the tree to insure another crop.

I will not venture to say how many apples can be picked in a first-class workmanlike manner. As has been stated, conditions vary greatly.

If the apples after being picked and packed were to be inspected by U. S. inspectors, as is done and has been done for the past 10 years at the Western New York Horticultural Society meetings in Rochester, I would not want any pickers to pick more than half as many apples as Mr. Moore has stated.

Roy J. Homer,
 Rochester, N. Y.

It Can't Be Done

Far be it from me to question any man's word as to his accomplishments, but when your 276-bushel apple picking star says he picks a 20-year-old Baldwin tree in "three or four sets" he stretches our local imagination to the point where there is considerable tendency to discount the whole article. Granting only a 10-foot spread from trunk (which is small around here at 20 years), four sets equal 15 feet picking area or circumference. How tall is this man, eight feet?

J. R. Edgerton,
 Westtown, Pa.

From a Beginner

I read Mr. Miller's letter and thought I would give him something more to argue about.

I think Mr. Moore didn't know what he

(Continued on page 23)
 AMERICAN FRUIT GROWER



DANIA BEACH HOTEL
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FRUIT OUTLOOK

(Continued from page 10)

production was greatly restricted because of adverse growing conditions during the 1934 and 1936 seasons.

From the longer time viewpoint, however, the general trend in production is expected to be downward at a slow rate, unless tree replacements and new plantings are increased somewhat over those of the last several years.

Even with some increase in average production the average price to growers for the next five years will probably be somewhat higher than the average of the last five seasons because of increased consumer buying power.

Producing capacity of the apple industry has been scaled down to a point at which production, on the average, is lower than at any time following the tremendous expansion of more than 25 years ago. During this period millions of trees were removed. The number of trees now in apple orchards is probably not greatly in excess of 95,000,000 compared with 116,300,000 trees in 1930 and 217,100,000 trees in 1910. Since new plantings for several years have been very light, a further decrease in tree numbers is to be expected.

World apple production is on a slightly upward trend. Improvements are being made in cultural and marketing practices in most apple-growing countries, with the result that the rate of increase in the production of dessert apples is much more rapid than the rate of increase in the total production.

PEACHES

In the next five years average peach production in the United States is likely to be near the average of the last five years. The anticipated production of peaches for market as fresh fruit, under average growing conditions, will not result in burdensome market supplies. The number of bearing and nonbearing peach trees in the United States declined considerably from 1930 to 1935, according to census figures. Large numbers of diseased or injured trees have been removed during the past two seasons. In some of the important commercial areas relatively large numbers of trees are past the age of maximum production.

It is expected that the effect of these limiting factors will be approximately offset by relatively large plantings in 1935 and 1936, the anticipated heavy plantings in the next few years, the generally good care orchards are receiving, and the fact

(Continued on page 24)

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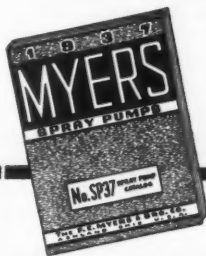


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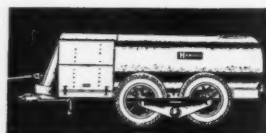
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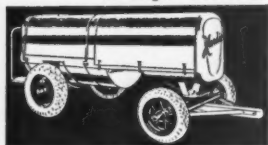
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LOW TEMPERATURE INJURY

(Continued from page 11)

fruit tree are going through a maturing process which, when fully completed, enables them to resist to their maximum ability the usual minimum temperatures. When this normal process is interrupted or slowed down, temperatures even above zero may cause severe injury. In a few cases the cold wave of October, 1935, caused direct injury to cambium and sapwood, but its most serious result was to check the normal maturing processes and to set the stage for what occurred in January.

November, 1935, was unusually cloudy, wet, and mild, while December also was warm until the last 10 days, when a cold spell of moderate intensity began. The first two weeks in January were above normal in temperature but on the 19th a sudden drop with a heavy blizzard hit the entire State, although the minimum temperatures were probably not low enough to cause much trouble. The temperature moderated on January 20 and on the sunny morning of January 22 many fruit growers in their shirt sleeves were pruning trees. By the middle of the afternoon in the western part of the State the thermometer had dropped from 40 to 50 degrees, with minimum temperatures of minus 10 to minus 20 degrees. This was accompanied by a high wind which started in the southwest and swung into the northwest. The drifting snowfall soon made roads impassable. As this storm moved eastward the intensity of the drop decreased somewhat and the period of rapid drop was later and extended into the night. East of the mountains the drop was from 30 to 40 degrees with minimum temperatures of minus 5 to minus 10 degrees.

The heavy snowfall and uniformly low temperatures during the rest of January and the entire month of February made it impossible for most fruit growers to make a careful inspection of their trees until the middle of March or later. Then many found trees with the bark split vertically and rolled back for two or three inches. A few growers who investigated more carefully found blackened areas under bark which gave no external indication of such injury. Soon many inquiries came to the Agricultural Experiment Station and to the extension representatives at State College asking the cause, the severity, the cure, and the prevention of these injuries. In an attempt to secure the answer to some of these questions, members of the Horticultural Department spent much of the summer visiting the fruit regions of

(Continued on page 25)

CALENDAR OF COMING MEETINGS and EXHIBITS

- Jan. 5-7—Maryland State Horticultural Society 39th annual meeting, Hotel Alexander, Hagerstown.—A. F. Vierheller, Sec'y, College Park.
- Jan. 5-7—Nebraska State Horticultural Society annual meeting, Plant Industry Bldg., College of Agriculture, Lincoln.—E. H. Hoppert, Sec'y, Lincoln.
- Jan. 6-8—Massachusetts Fruit Growers' Association annual meeting, Worcester Memorial Auditorium, Worcester.—William R. Cole, Sec'y, Amherst.
- Jan. 12—Vermont State Horticultural Society winter meeting, Burlington, in conjunction with the Union Agricultural meeting.—M. B. Cummings, Sec'y, Burlington.
- Jan. 12-14—Indiana Horticultural Society 76th annual meeting, Lafayette, in conjunction with Purdue Agricultural Conference Week.—Everett Wright, Sec'y, Lafayette.
- Jan. 12-15—New York State Horticultural Society annual meeting, Rochester.—Roy P. McPherson, Sec'y, LeRoy.
- Jan. 20-21—State Horticultural Association of Pennsylvania annual meeting, Harrisburg, during State Farm Show. R. H. Sudds, Sec'y, State College.
- Jan. 25-27—Ohio State Horticultural Society annual meeting at Ohio State University, Columbus, during Farmers' Week.—F. H. Beach, Sec'y, Columbus.
- Jan. 27-29—Eastern meeting New York State Horticultural Society, Kingston.—Roy F. McPherson, Sec'y, LeRoy.
- Jan. 28-29—Tennessee State Horticultural Society annual meeting, Hermitage Hotel, Nashville.—G. M. Bentley, Sec'y, University of Tennessee, Knoxville.
- Feb. 3-5—Idaho State Horticultural Association 42nd annual convention, Hotel Owyhee, Boise.—W. H. Wicks, Sec'y, Boise.
- Feb. 3-5—Illinois State Horticultural Society annual meeting, Illinois Fruit Exchange Bldg., Carbondale.—Joe B. Hale, Sec'y, Salem.
- Feb. 10-11—West Virginia Horticultural Society annual convention, Martinsburg.—Carroll R. Miller, Sec'y, Martinsburg.
- Feb. 20—Rhode Island Fruit Growers Association annual meeting, Biltmore Hotel, Providence.—E. P. Christopher, Sec'y, Kingston.

"HOW FAST CAN A FAST PICKER PICK"

(Continued from page 20)

was talking about, and I'm sure Mr. Miller got the best of him.

There won't be much for Mr. Moore to brag about after he reads this:

I picked this year (my first year) on a 20-acre level orchard (all apples). The average height of the trees was 14 to 20 feet. I picked all year with an eight-foot ladder. I am six feet two inches tall (16 years old).

One day (it happened to be the last day) I picked 245 boxes of King apples. My fellow worker picked 256 boxes. I was the second best picker.

We worked eight hours a day, remember, not 10 or 12.

We could not start picking until eight in the morning because the apples were wet from the night's dew which would have

caused finger bruises on the apples if picked. We quit at five. I had to walk one mile back and forth for my noon lunch. At three o'clock that day we had to stop 20 minutes as we ran out of boxes. We had to put a ticket in every filled box (one bag filled a box).

We had a boss watching us every minute to see that we didn't pick on the ground, or pick without stems, or pick the apples with spurs (Newtown apples were an exception). I moved my ladder about 10 times a tree (big and bushy) and then I would climb what I couldn't reach with a ladder. The trees averaged from 20 to 40 boxes. You know, Parkdale (where I live) is in the world-famous Hood River Valley. My boss states that 300 boxes have been picked in Washington. Mr. Miller will probably tell me about the Liar's Contest.

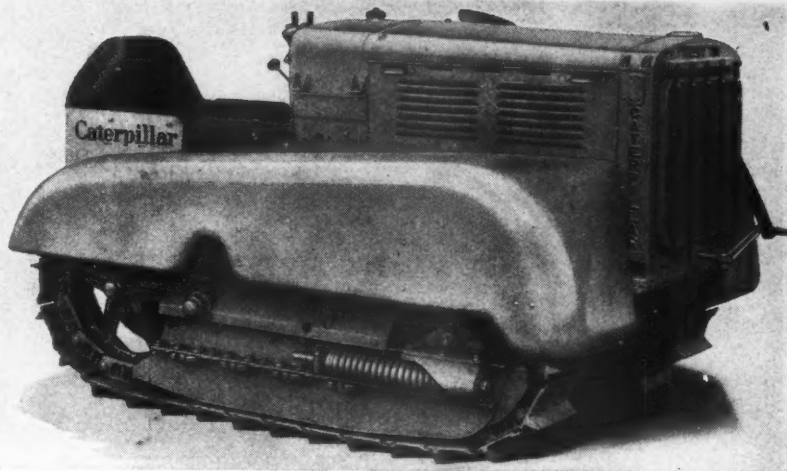
Amadeo Fiocetti,
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BELL TELEPHONE SYSTEM

FRUIT OUTLOOK

(Continued from page 21)

that peach growing conditions for the country as a whole are likely to average above those of 1932-36 since in each of these years they were below the 10-year average.

The anticipated production of peaches for market as fresh fruit under average growing conditions will not result in burdensome market supplies. Since 1932 the average farm price of peaches for the country as a whole has been more favorable to growers than the average price of all farm products when compared with prices farmers pay for the products they buy.

No sharp increase in production of other deciduous summer fruits is in prospect and in view of the probable increase in consumer buying power in the next few years prices to growers for fresh peaches are expected to remain favorable except in years when growing conditions are considerably above average.

At this time growers should recognize the danger of over-expansion for the industry. In the past, periods of profitable prices have often so stimulated planting that overproduction in some districts and severe losses to growers resulted. In these periods of over-expansion, orchards have frequently been set on sites and under conditions unsuited to peach growing.

CITRUS

It is estimated that in continental United States there are approximately 615,000 acres of orange and grapefruit trees that are old enough to be considered in commercial production. In addition, there are some 127,000 acres that are not yet of bearing age, making a total of 743,000 acres devoted to the production of these two fruits. If all of the non-bearing acreage comes into bearing with no more than a normal mortality and if the present bearing acreage suffers no unusual setback, it is probable that the average crop of oranges and grapefruit combined for the next five years will amount to around 80,000,000 boxes. Such an average would be about 25 per cent larger than the average crops for the years 1928-1932.

The average orange crop for the last five years has been around 53,000,000 boxes and for the next five-year period it can be expected to be about 55,000,000. Grapefruit production is increasing and promises to continue upward for another decade provided there is no unusual abandonment of acreage.

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LOW TEMPERATURE INJURY

(Continued from page 22)

Pennsylvania and of adjoining States.

The area of heaviest killing in Pennsylvania can be outlined by beginning at the West Virginia border southwest of Pittsburgh near Washington, going eastward to central Somerset County, then in a quarter circle north and west to the Ohio line between New Castle and Sharon. This area extends westward through the northern panhandle of West Virginia well into Ohio. The Lake Erie fruit belt had practically no injury to apples and very little to sweet cherries and peaches. The scattered orchards in the Allegheny Plateau and the inter-mountain regions show the greatest degree of variability—some have as heavy killing as in the Pittsburgh area, others none at all. The main fruit regions of the State lie east and south of the quarter circle of mountains running from the Maryland line west of Hagerstown, north of Harrisburg and Reading to the New Jersey line at the Delaware Water Gap. This southeastern area of the State was a marginal zone of injury, with the peach and cherry showing considerable injury, although only a few trees were killed outright, and probably less than five per cent of all apple trees were injured.

In the Pennsylvania area of severe injury, only part of the apple trees showed trunk bark splitting early in the spring. Many of the affected trees exhibited no external signs of injury until late summer; trees apparently sound matured a crop of apples even though tapping the trunk showed a part or all of the bark cylinder to be separated from the wood from the ground line to the first limbs. The lower branches on many Baldwins or even whole trees were killed. Nearly all the bearing peaches in this area were killed or injured so severely that recovery is doubtful; this is also true of many of the wild sweet cherries. While certain orchards have a high percentage of injury, there are usually nearby orchards with only minor amounts.

The variable amount of injury in the plateau and inter-mountain area makes it easier to determine the combination of conditions responsible for this lack of uniformity, while a study of those sick trees in the southeastern region yields still better data. Unfortunately, there are wide variations from one locality to another. In one place, a certain variety would be injured, another be completely hardy; 50 miles away these results might be reversed. In one orchard the injury seemed correlated with lack of vigor; in another it was associated with an excess of vigor.

These apparent conflicts, however,

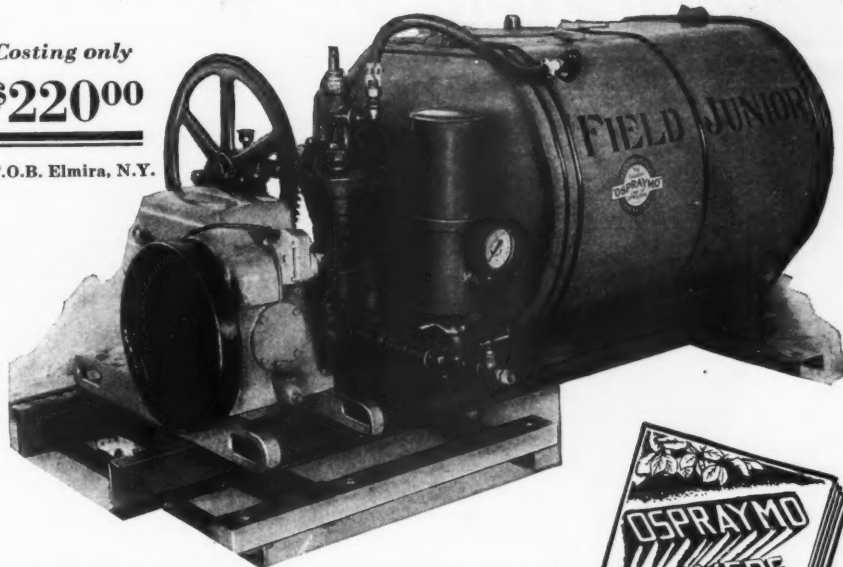
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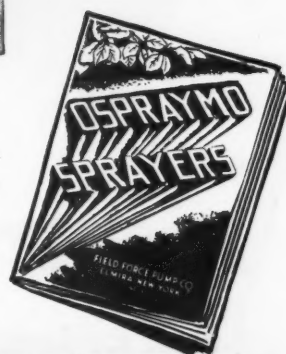
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seem to have a simple explanation. By far the larger proportion of the damage from low temperature during the winter of 1935-36 can be accounted for only on the basis of lack of maturity of the trees, for the parts injured are those slowest to mature. Those orchards which escaped while nearby orchards suffered were those where the trees had a better opportunity to reach maturity. Some of the orchards most seriously injured were those overstimulated by too heavy fertilization or too much moisture, by severe pruning, or by late cultivation; trees in other orchards failed to reach maturity because of lack of fertility. The bearing of a heavy crop, which is a severe drain on the reserves of a tree, and which is one of the commonest causes of delayed maturity, was one of the chief reasons for the death of trees in the winter of 1917-18 and was an important contributing factor in 1935-36. The greatest single item delaying maturity, however, was the October freeze with the resulting injury to the leaves and possibly to the sapwood.

Immature tissue of a fruit tree is always more seriously injured by sudden temperature drops, and the drop of January 23 was the direct cause of the winter injury. Severe killing coincides with that area in the western part of the State where the drop in temperature started at or above



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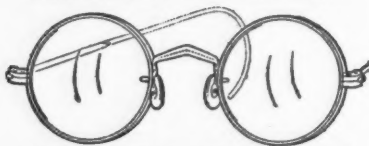
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PAGE 26

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AMERICAN FRUIT GROWER

freezing and the mercury sank to
minus 10 or minus 20 degrees in a
few hours. Where the drop was only
one of 30 to 35 degrees, the resultant
injury was relatively less, and when
the temperature dropped more slowly,
as was the case in the northern third
of this State and in New York, in-
jury was almost absent.

What can the fruit grower do about
it? Certainly he cannot control the
weather. But there are some things
which he can do to prepare the trees
to meet the low temperatures. Many
trees were killed because they were
growing on too low a fertility plane—
a condition usually due to thin soil—
or had been checked previously by
too wet soil. A more careful selection
of orchard sites will save much of
this loss in the future. Excessive
erosion which had produced weak
trees was an outstanding method of
inducing injury, and cultivation late
in August or early September which
stimulated trees already checked by
a heavy cover crop of weeds was
nearly as dangerous. Too heavy fer-
tilization, particularly the liberal use
of manure, killed or injured many
trees. The kind of fertilizer used and
whether it was applied in spring or
fall seems not to have been a factor
in increasing the injury. Thinning in
the summer to reduce heavy crops
saved many trees in the freeze of
1933-34 and was a helpful factor in
1935-36. In some instances pruning
in both these winters has increased
tree damage. Why this is true has yet
to be determined.

We may summarize these as fol-
lows: 1) Select the orchard location
with care to have at least a moder-
ately fertile soil which can be kept
from eroding and which has good air
and internal water drainage. 2) Main-
tain uniform soil fertility from year
to year without forcing a strongly
vegetative growth. 3) Keep leaves
fully active—spray but avoid spray
burn so far as possible. 4) Use sods
and early seeded cover crops adapted
to the particular soil and climatic
conditions in order to harden up the
growth which wisely planned fertil-
ization should produce in the spring.
5) Do as much as possible of the
apple pruning in late winter. It is
better to prune too little than too
much. Peaches should be spring
pruned altogether.

What repairs can be made to win-
ter injured trees? When there is a
suspicion that fruit trees have been
injured by winter weather, with very
few exceptions it is best to leave them
unpruned in the spring until after
the leaves are full size. Many cold-
injured peach trees have been killed
by the usual winter pruning. As soon
as it is clear that branches are dead
or have too few leaves to be of any
further use, these can be removed. In
case of cracked trunk bark, tacking

(Continued on page 27)

JANUARY, 1937

SAVE THE SOIL SURFACE

(Continued from page 9)

out the incorporation of cover crops reduced the content of organic matter in a sassafras gravelly loam nearly 20 per cent, and at the same time greatly increased soil erosion on the gentle slope. On the other hand disk-ing under annual cover crops in-creased organic matter and slight or no erosion took place, according to the cover. Cover crops seeded June 1 competed strongly with tree growth and the young trees were markedly smaller than trees with later covers or no covers. It would appear ad-visable to keep early cover crops at a distance from young trees, probably at least six feet."

Application of lime and phosphate-potash mixtures should be made every three or four years to insure a luxuri-ant growth of the cover. Lespedeza or other suitable crop planted early in the spring followed by rye, oats, or winter barley over winter, to be clipped and left in the orchard, will make an effective cover crop which will materially control erosion and in-crease the organic matter content of the soil, which will serve as a store-house for plant food and moisture.

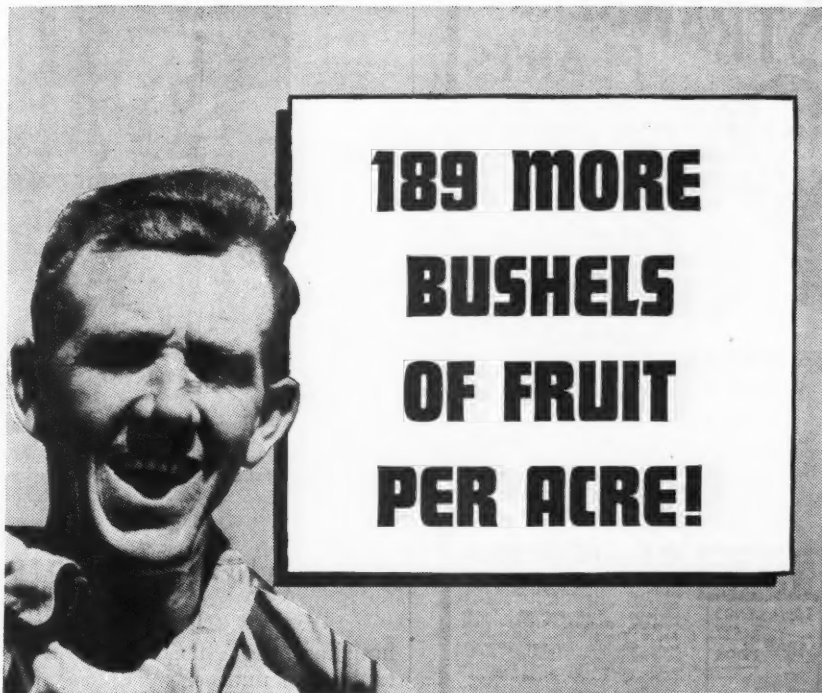
Under the average cover crop sys-tem as described, the soil will contain adequate amounts of all the necessary plant food elements for fruit produc-tion except nitrogen. This is true for some time even if legume crops are grown. Since barnyard manure is not as a rule available, supplemental nitrogen should be applied to the young trees, increasing the amounts each year as the trees grow larger.

LOW TEMPERATURE INJURY

(Continued from page 26)

it down and waxing is of some value if there is still some live cambium which frequently is not the case. Areas of dead bark should not be removed until it is clear there is no chance for any isolated spots of cam-bium to live. Then, when the bark is cut back to live tissue, the exposed wood should be kept painted to pre-vent rotting. If the bare area is not too extensive, bridge grafting can be of considerable help. Trees where the sapwood of the trunk is exposed completely have little chance for re-covery. In some trees the area of bark killing is confined to the larger crotches. This bark also should be left until it is possible to distinguish readily between live and dead bark. After drying, the exposed wood should be painted. These branches may live for an indefinite period but the exposed wood has been weak-ened and unless the branch is wire braced or propped, it will eventually break off.

JANUARY, 1937



6-YEAR TEST SHOWS BIGGER FRUIT YIELDS WHEN FERTILIZED WITH SULPHATE OF AMMONIA

IN a test covering six years in the "Morgenthau Orchard," Sulphate of Ammonia gave out-standing returns.

Applied at the rate of 5½ pounds per tree, the official yield was 492 bushels per acre, an in-crease of 189 bushels over the check plot's yield of 303 bushels. At 3 pounds per tree, the yield was 434 bushels.

This test was conducted under the careful supervision of R. C. Collison and L. C. Anderson of the New York State Agricultural Experiment Station and is re-ported in detail in bulletin No. 661 issued by the Station.

Proof positive that it pays to fertilize fruit and that it pays to use Sulphate of Ammonia.

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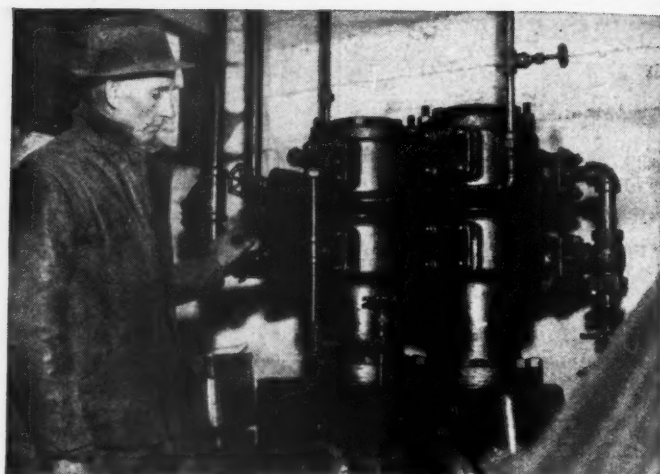
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J. D. Coffing looking over the refrigerating condensers on the Coffing Orchards. These condensers serve a 40,000-bushel capacity air-conditioned cold storage.

AN ELECTRIFIED FRUIT FARM

(Continued from page 15)

housing the stationary spraying tanks and pumps.

Refrigeration in the cork-insulated cold storage is of the air-conditioning type. A large condenser op-

erated by electric power automatically maintains the desired temperature.

One of the largest stationary spraying outfits in the country is installed in the orchard. Two large tanks in which the spray materials are mixed connect with three heavy-duty spray pumps. These pumps, operated by a large electric motor, send spray materials through the extensive pipe system. Pressure developed by these pumps makes possible maximum delivery at the farthest ends of the orchards.

A large blueprint of the orchard is located in the stationary spraying equipment building. Each time a spraying operation is performed the area covered is charted on the blueprint, along with the materials used, the temperature, and the name of the gun operator and that of his hose carrier. In this manner results are checked and necessary corrections made in future spray applications. Like the master of a ship at sea the Coffings chart their course in the battle against fruit insects and diseases.

Water for spraying is pumped by electricity from a deep pond near the spray building. The pond is a dammed up creek. It is fed by springs and surface water, supplying ample spraying water and a convenient swimming place for the Coffing children.

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AMERICAN FRUIT GROWER

JANUARY, 1937

for electrical lighting for working on dark winter days and at night.

The horticultural practices of the Coffings are as up-to-date as the electricity that means so much to the orchard operations. Both are active members of the Indiana Horticultural Society. H. J. is now president of the society.

There are two retail outlets for the fruit produced in the Coffing orchards. These are located at Covington and Perrysville, Ind. Remainder of the fruit usually moves through Danville, Ill., wholesale channels.

Electricity has brought modern efficiency to the Coffing Bros. Orchards. The extent to which it is used signifies their faith in this type of power.

Varieties of Filberts in the Pacific Northwest

In a paper before the last annual meeting of the Northern Nut Growers' Association, C. E. Schuster of Corvallis, Ore., discussed various phases of filbert culture in the Pacific Northwest. This note is concerned chiefly with Mr. Schuster's discussion of varieties.

In pioneer days, seedling trees were generally sold by the nurserymen and a few of these are still living. A filbert tree planted in 1854 is now in good condition, has a spread of 50 feet and bears regularly small nuts of the Aveline type. In 1894 the late A. A. Quarnberg of Vancouver, Wash., bought and set two trees of DuChilly from Felix Gillet of Nevada City, Calif., and a year later Henry Biddle, also of Vancouver, bought the first Barcelona trees to be planted in the Pacific Northwest from Mr. Gillet. Various plantings consisting of many varieties were set the next few years.

From this beginning Barcelona emerged as the leading commercial sort in Oregon, while DuChilly assumed a similar role in Washington. These two varieties with their large, handsome nuts greatly stimulated further interest in filbert planting. Other varieties closely resembling Barcelona and DuChilly have come to be known and propagated under these names.

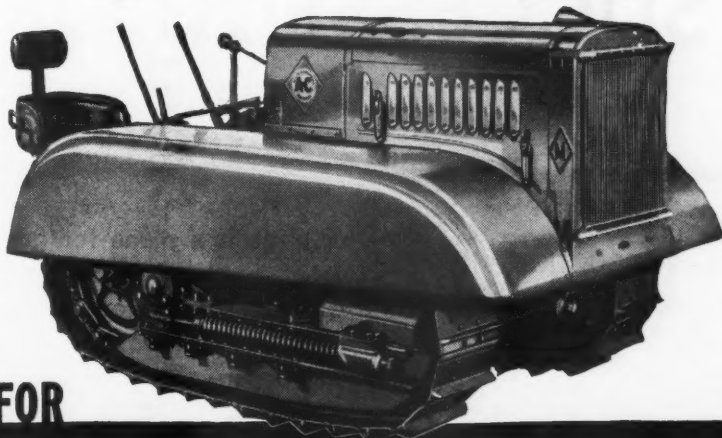
Various attempts to produce better varieties have been made by raising large numbers of seedlings. One such planting of 5,000 seedlings produced the Brixnut which is now becoming of some importance. Longfellow and Mosier are large nuts, but rather thick-shelled and not especially attractive in appearance. Nooksack, from northwest Washington, is being developed as a pollinizer for the DuChilly, which it resembles. Scherf and Royal are two other recent introductions still in the trial stage.

All commercial varieties of filberts require cross-pollination by other varieties to set a crop of nuts. It is important to choose varieties as pollinizers whose staminate flowers bloom at the same time as the pistillate flowers of the variety to be pollinated.

Barcelona, with a long pistillate blooming period, required three varieties to cover the season. White Aveline, Daviana and DuChilly proved very effective for this purpose. More recently Montebello is being substituted for White Aveline, it being superior in tree characters. Daviana is sometimes used alone with Barcelona as it has a long pollen-shedding period. Alpha, Clackamas, Nooksack, and Gassoway are suitable pollinizers for DuChilly.

Two or three varieties are better than one, as varieties often fail to bloom in the same sequence during two seasons. Du-

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Chilly with its short period of receptivity is more in need of additional pollinizing varieties than Barcelona with its long period.

Bolwyller, locally called Hall's Giant, is generally used to pollinate Brixnut.—G. L. SLATE, Sec'y, Northern Nut Growers' Assn., Geneva, N. Y.

Convenient Pruning Guide

A CLEVERLY arranged booklet, amply illustrated with drawings depicting the pruning of fruit trees, grapes and brambles, together with the pruning of flowers, shrubs, hedges, evergreens and shade trees, is the Disston Pruning Guide. It's a long, narrow, 40-page booklet which fits readily into the hand and slips into the pocket with ease, making it possible to have pruning information in the orchard where it is needed.

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PAGE 29

SUCCESSFUL ORCHARDS

● A "ROUND TABLE" PAGE FOR EVERY GROWER ●

MORE FACTS ON RASPBERRY PRODUCTION

CONTINUING his first discussion, which appeared in the December issue, on Cumberland black raspberry production facts, William F. Yowell of Nebraska says:

"Each fruit-bearing bud will produce a lateral, and laterals should average 12 berries each. Under favorable conditions and proper care these berries should run about 16 to the ounce. The hills should average 86.4 ounces or four one-quart boxes and 1.2 ounces. From these figures it is assumed that one acre should produce 7,362 one-quart boxes or about 307 twenty-four-quart crates. This would amount to 230 bushels per acre.

"Through personal correspondence, Alfred W. McCann of New York has analyzed the amount of mineral elements required for this quantity. This analysis does not include elements used by the plant. The elements with their percentage are: Calcium, .049 per cent; magnesium, .024 per cent; potassium, .173 per cent; phosphorus, .052 per cent; sulphur, .017 per cent and iron, .0006 per cent. The water amounted to 84.1 per cent or 989.36 gallons by weight."

Any comments on this excellent observation work of Mr. Yowell should be sent at once to the Round Table Editor. Let us hear about your reaction to this and the December discussion by Mr. Yowell.

IRRIGATION AIDS RASPBERRY PLANTING

HOT, dry weather seemed to be ruining the Latham raspberry planting of Herbert J. Plagge of Ames, Iowa, last summer when—but let Mr. Plagge tell you of his experience.

This page is a place for growers to get together and exchange experiences and ideas. The beginner, as well as the veteran, will find here many practical suggestions for better and more profitable fruit growing. In return for the helps you receive from this page, be ready to pass on, for the benefit of others, any new idea, method or procedure you have developed or run across. Just jot it down as it occurs to you (a postcard will often do) and mail it to the "ROUND TABLE EDITOR," AMERICAN FRUIT GROWER. Don't worry about fancy writing. What the readers of this page want are practical pointers—that are to the point.

"I have five rows of Latham raspberries which set a rather heavy yield of fruit last summer. When Prof. H. L. Lantz, secretary of the American Pomological Society, looked at the planting during the hot weather he suggested that I irrigate it.

"This is the first year that I tried irrigation. Owing to the fact that my land has a gentle and uniform slope in the direction of the rows, I found that it was a comparatively simple matter to obtain slow irrigation. During six days of some of the hottest weather, I filled the ditches three times, allowing the water to seep slowly into the ground. The plants held up in good shape, showing fresh and green despite the burning sun. Several berries were injured by the direct rays of the sun.

"I would like to ask readers of the 'Round Table' page if any of them have tried to raise raspberries under some sort of a half shade and if this is practical or economical. Does anyone know?

"In setting up such an irrigation system as mine it is important, of course, to observe the flow of water carefully and to find the large cracks which rob the plants of water. I find that by puddling the bottom of the trench with the back side of a garden rake much time can be saved in filling the cracks and in securing a uniform delivery of water."

If any of our readers have the answer to Mr. Plagge's question, send it in at once so we will be able to print it in the next issue.

WEATHER-WEAKENED APPLE LIMB SUPPORT

DP. INK of St. Charles, Iowa, writes regarding the anchorage and support of limbs with weak crotches caused by winter injury:

"In apple trees which received crotch injury in the winter of 1936, injured bark should have been removed if it didn't recover during the past growing season. The wood beneath the injured portion should be disinfected and painted with a good reliable wound dressing to prevent infection and hasten healing. Even when this work is done, the crotches will be weakened for years to come until the wounds are completely healed over.

"Most of the weakened areas are on the upper side of the limb where it joins the main trunk. Consequently, the limb is apt to break or split under a load of fruit or in windstorms. Such limbs should be anchored to the main trunk or to each other if the tree is the open head type. They may be bolted together or wired by using lag-screws bent so the head end forms a hook and screwed into the limb. Number 12 wire is then fastened over the hook end of the lag-screw and run to lag-screws on other limbs. Two, three or four strands of wire should be used depending on the size of the limbs and the weight to be supported. The wires are then twisted with a rod or screw driver until they form a cable.

"The hole into which the lag-screw is placed should be covered with wound dressing after the screw is in place. Never wrap the wire around the limbs as it may in time girdle them.

"Water sprouts on the limbs can sometimes be grafted into the trunk or another limb, forming a living brace. Any type of such tree bracing, if it is thoughtfully done, may add years to the life and usefulness of the tree."



A natural tree brace in the orchard of Thomas K. George, Homer City, Pa. According to J. W. Warner, agricultural agent for Indiana County (Pa.), Mr. George has hundreds of such grafts made by tying or twisting together suckers or water sprouts.

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Add 3 lbs. of Sherwin-Williams Arsenate of Lead to each 100 gallons of spray when necessary.

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This Spray Schedule Assures FINE COLOR—FINE FINISH—HEALTHY FOLIAGE

This spray schedule and this new, economical way to make sulfur wettable with Sherwin-Williams Dry Lime Sulfur protects your crop against scab, against russet, and against foliage injury, thus assuring you of apples with a FINE FINISH and FINE COLOR.

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| 2-4 Dinitro-6 cyclohexylphenol | 4% |

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